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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,336	04/28/2006	Andreas Luger	LUGER ET AL-1 PCT	5149
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COLLARD & ROE, P.C. 1077 NORTHERN BOULEVARD ROSLYN, NY 11576			EXAMINER BEHM, HARRY RAYMOND	
			ART UNIT	PAPER NUMBER
			2838	
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			09/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/577,336	Applicant(s) LUGER ET AL.	
	Examiner HARRY BEHM	Art Unit 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The original drawings received 4/28/06 are approved.

Response to Arguments

Applicant's arguments filed 7/24/08 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., variations of the energy of the D.C. supply voltage or solar module are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues Kuranuki teaches setting the dead time as a function of the consumed power of the power supply and does not disclose setting the dead time as a function of the detected current of the d.c. voltage source. However, the dead time is not set as a function of power, but as a function of the detected current (Fig. 1 I9) of the d.c. voltage source (Fig. 1 Vin). Figure 6 clearly shows how the dead time is a function of the detected current of the d.c. voltage source by detecting the return current of the d.c. voltage source.

Examiner agrees than Nakata discloses a known topology with such claimed features as a solar inverter, transformer, rectifier and chopper feeding the a.c. grid. Kuranuki teaches the remaining claim limitations such as continuously detecting the

current of the d.c. voltage source and setting the dead time as a function of the detected current.

In response to applicant's arguments that the input voltage from a solar module is not always constant, the recitation solar inverter has not been given full patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded full patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Examiner reiterates that Applicant has not claimed a solar module. Even assuming a solar module had been claimed, the combination of Nakata and Kuranuki would still operate as intended because the dead time would be increased for light current regardless of whether the light current was due to a light load or a low source.

Applicant's arguments with respect to Yang do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections. Since Yang teaches varying the frequency as a function of the detected current, Yang teaches the additional claim limitations of the frequency of modulation set as a function of the current detected.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata (US 5,719,758) in view of Kuranuki (US 6,452,816).

With respect to Claim 18, Nakata discloses a method for a solar inverter (Fig. 1 1) for feeding energy produced by a d.c. voltage source (Fig. 1 2) into an a.c. voltage grid (Fig. 1 3), in which

the energy produced by the d.c. voltage source (Fig. 1 2) is chopped in the form of a pulse width modulation by a bridge inverter (Fig. 1 5), by alternate switching of switching elements (Fig. 1 Q1-Q4) connected in parallel and connected in series, and this chopped energy is transmitted via a transformer (Fig. 1 6) which is connected between the switching elements (Fig. 1 Q1-Q4) that are connected in series, whereupon the energy transmitted is rectified (Fig. 1 7) and fed into the a.c. voltage grid (Fig. 1 3) via a buck chopper (Fig. 1 9), wherein, for a power adaptation, the switching times of the switching elements (Fig. 1 Q1-Q4) of the bridge inverter (Fig. 1 5) are controlled.

Nakata does not disclose how the dead time should be determined for the switching elements (Fig. 1 Q1-Q4). Kuranuki discloses adjusting the dead time for a bridge inverter (Fig. 1 11-14) based upon the energy produced by the d.c. voltage

source (Fig. 1 Vin), which is detected (Fig. 1 9) permanently [continuously], and in that a dead time (Fig. 6 Dead Time) of the switching elements (Fig. 1 11-14) of the bridge inverter is set as a function of the detected energy [sensed current] of the d.c. voltage source (Fig. 6), the dead time representing a time of the switching elements for switching over from one switching element to a further switching element connected in series.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the dead time of the bridge inverter based upon the sensed current to the bridge inverter. The reason for doing so is to reduce “the switching loss in the light-load period and suppresses the occurrence of surge current and voltage, thereby realizing efficiency improvement and noise suppression”, (Kurunaki column 4, lines 2-6).

With respect to Claim 12, Nakata in view of Kuranuki discloses a method as set forth above wherein the dead time, and thus the switching times, are automatically based on the sensed primary current from the dc source.

With respect to Claim 13, Nakata in view of Kuranuki discloses a method as set forth above. See claim 12 for details.

With respect to Claim 14, Nakata in view of Kuranuki discloses a method as set forth above wherein the dead time, and thus switching times, of the switching elements are determined by the sensed primary current (Fig. 6 Time Average of Load Current).

With respect to Claim 15, Nakata in view of Kuranuki discloses a method as set forth above where in the switches are set appropriately.

With respect to Claim 16, Nakata in view of Kuranuki discloses a solar inverter. See claim 10 for additional details.

With respect to Claim 17, Nakata in view of Kuranuki discloses a solar inverter as set forth above. See claim 10 for additional details.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata (US 5,719,758) in view of Kuranuki (US 6,452,816) and further in view of Yang (US 6,597,159).

With respect to Claim 11, Nakata in view of Kuranuki disclose a method as set forth above and do not disclose how the switching frequency is determined. Yang discloses adjusting the switching frequency based upon the sensed primary current. It would have been obvious to one of ordinary skill in the art at the time of the invention to lower the switching frequency at lighter load currents. The reason for doing so is "the frequency modulation in the PWM controller can reduce the power consumption of the power supply in light load and no load conditions", (Yang column 4, lines 15-19).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HARRY BEHM whose telephone number is (571)272-8929. The examiner can normally be reached on 7:00 am - 3:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm E. Ullah can be reached on (571) 272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2838

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry Behm/
Examiner, Art Unit 2838

/Jeffrey L. Sterrett/
Primary Examiner, Art Unit 2838